Claims

1. A continuous process for manufacturing an electric cable (1), comprising the steps of:

- feeding (201) a conductor (2) at a predetermined feeding speed;

- extruding (202) a thermoplastic insulating layer (4) in an radially outer position with respect to the conductor (2);

- cooling (203) the extruded insulating layer (4) to a temperature not higher than 70°C;

- forming (210) a circumferentially closed metallic screen (6) around said extruded insulating layer (4).

2. Process according to claim 1, wherein the extruded insulating layer (4) is cooled down to a temperature in the range from about 30°C to about 70°C.

3. Process according to claim 2, wherein the extruded insulating layer (4) is cooled down to a temperature in the range from about 40°C to about 60°C.

4. Process according to claim 1, wherein the forming step (210) comprises the step of longitudinally folding a metal sheet (60) around said extruded insulating layer (4).

5. Process according to claim 4, wherein the forming step (210) comprises the step of overlapping the edges of said metal sheet (60) to form the metallic screen (6).

6. Process according to claim 4, wherein the forming step (210) comprises the step of bonding the edges of said metal sheet (60) to form the metallic screen (6).

7. Process according to claim 1, further comprising the step of supplying the conductor (2) in the form of a metal rod.

8. Process according to claim 1, further comprising the step of applying a primer layer around the metallic screen (6).

9. Process according to claim 8, wherein the step of applying the primer layer is carried out by extrusion.

10. Process according to claim 1, further comprising the step of applying an impact protecting element (20) around said circumferentially closed metallic screen (6).

11. Process according to claim 10, wherein the step of applying an impact protecting element (20) comprises the step of applying a non-expanded polymeric layer (21) around said metallic screen (6).

12. Process according to claim 10, wherein the step of applying an impact protecting element (20) comprises the step of applying an expanded polymeric layer (22).

13. Process according to claims 11 and 12, wherein the expanded polymeric layer (22) is applied around the non-expanded polymeric layer (21).

14. Process according to claim 1, further comprising the step of applying an oversheath (23) around the metallic screen (6).

15. Process according to claims 12 and 14, wherein the oversheath (23) is applied around the expanded polymeric layer (22).

16. Process according to claim 1, wherein the step of cooling (203) the extruded insulating layer (4) is carried out by longitudinally feeding the conductor (2) with the thermoplastic insulating layer (4) through an elongated cooling device.

17. Process according to claim 1, wherein the thermoplastic polymer material of the insulating layer (4) is selected from the group comprising: polyolefins, copolymers of different olefins, copolymers of an olefin with an ethylenically unsaturated ester, polyesters, polyacetates, cellulose polymers, polycarbonates, polysulphones, phenol resins, urea resins, polyketones, polyacrylates, polyamides, polyamines, and mixtures thereof.

18. Process according to claim 17, wherein said thermoplastic polymer material is selected from the group comprising: polyethylene (PE), polypropylene (PP), ethylene/vinyl acetate (EVA), ethylene/methyl acrylate (EMA), ethylene/ethyl acrylate (EEA), ethylene/butyl acrylate (EBA), ethylene/α-olefin thermoplastic copolymers, polystyrene, acrylonitrile/butadiene/styrene (ABS) resins, polyvinyl chloride (PVC), polyurethane, polyamides, polyethylene terephthalate (PET), polybutylene terephthalate (PBT), and copolymers thereof or mechanical mixtures thereof.

19. Process according to claim 1, wherein the thermoplastic polymer material of the insulating layer (4) includes a predetermined amount of a dielectric liquid.